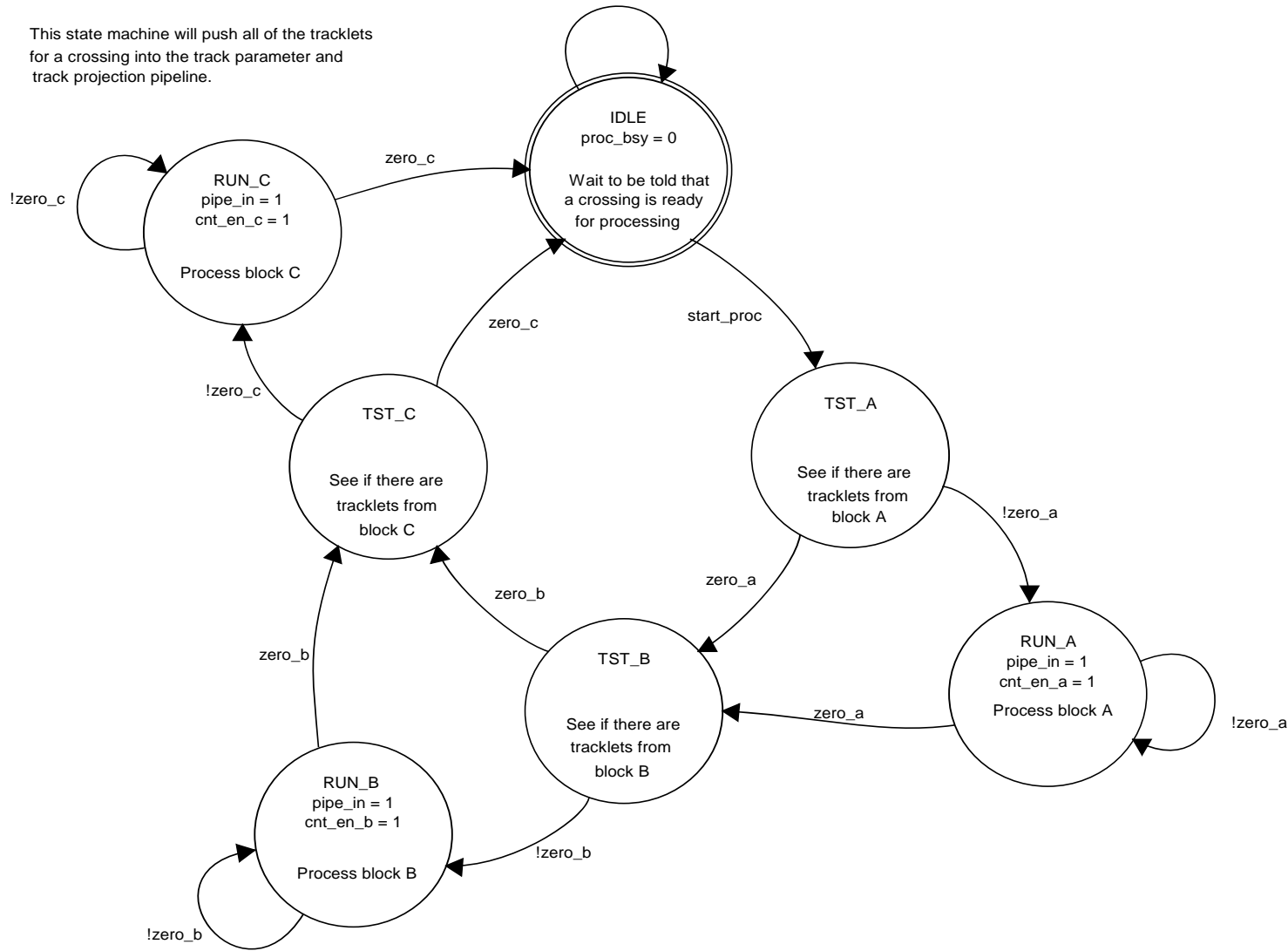This state machine will push all of the tracklets
for a crossing into the track parameter and
track projection pipeline.

RUN_C
pipe_in = 1
cnt_en_c = 1

Process block C

IDLE
proc_bsy = 0

Wait to be told that
a crossing is ready
for processing

TST_C

See if there are
tracklets from
block C

TST_A

See if there are
tracklets from
block A

RUN_A
pipe_in = 1
cnt_en_a = 1
Process block A

TST_B

See if there are
tracklets from
block B

RUN_B
pipe_in = 1
cnt_en_b = 1

Process block B

!zero_c
zero_c
start_proc
zero_c
!zero_c
zero_a
!zero_a
zero_a
!zero_a
zero_b
zero_b
!zero_b
!zero_b

STATE MACHINE
  name   TP_process_cross_sm
  clock   clk   posedge
  reset_signal   res   positive
  reset_state   IDLE   anyvalue
  implied_loopback 1
INPUTS
  start_proc   Start processing tracklets
  clk   Pipeline clock
  res   Reset
  zero_a   No more tracklets in block A
  zero_b   No more tracklets in block B
  zero_c   No more tracklets in block C
OUTPUTS
  proc_bsy   1   comb   Actively processing a crossing, asserted in all except IDLE
  pipe_in   0   comb   Inject a 1 into the pipeline
  cnt_en_a   0   comb   Enable counter A
  cnt_en_b   0   comb   Enable counter B
  cnt_en_c   0   comb   Enable counter C
STATES
  proc_bsy   1   output   Actively processing a crossing, asserted in all except IDLE
  pipe_in   0   output   Inject a 1 into the pipeline
  cnt_en_a   0   output   Enable counter A
  cnt_en_b   0   output   Enable counter B
  cnt_en_c   0   output   Enable counter C
TRANSITIONS
  equation   1   def_type
  priority   1000